**IN THE CLAIMS**

1. (ORIGINAL) A motor apparatus for controlling a voltage applied to an alternating current (AC) motor using a PWM signal, comprising:

magnetic position estimating means for detecting a current of said AC motor to estimate a magnetic pole position of said AC motor; and

fault detecting means for detecting a fault in an estimated magnetic pole position of said AC motor.

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2. (ORIGINAL) A motor control apparatus according to claim 1, wherein:

said fault detecting means includes means for calculating instantaneous power by multiplying a current value by a voltage value of each phase of said AC motor, such that said fault detecting means detects inversion of an estimated magnetic pole position by comparing the instantaneous power with power determined from a torque command and a rotational speed of said AC motor.

3. (ORIGINAL) A motor control apparatus according to claim 1, wherein:

said fault detecting means includes means for detecting an input voltage and an input DC current from a direct current (DC) power supply, such that said fault detecting means detects inversion of an estimated magnetic pole position by comparing power of said D power supply with power determined from a torque command and a rotational speed of said AC motor.

4. (ORIGINAL) A motor control apparatus according to claim 1, wherein:

said fault detecting means includes means for detecting an input DC current from DC power supply, such that said fault detecting means detects inversion of an estimated magnetic pole position by comparing the sign of the DC current with power determined from a torque command and a rotational speed of said AC motor.

5. (ORIGINAL) A motor control apparatus according to claim 1, wherein:

said magnetic pole position estimating means applies an AC pulse voltage signal in a d-axis direction on a rotating coordinate system of said AC motor to estimate a magnetic pole position of said AC motor from a difference between a current generated when the AC pulse voltage signal is applied in a positive direction and a current generated when the AC pulse voltage signal is applied in a negative direction; and

said fault detecting means detects inversion of an estimated magnetic pole position from a phase difference between a voltage command vector and the d-axis on the rotating coordinate system recognized by said control apparatus.

6. (ORIGINAL) A motor control apparatus according to claim 1, wherein:

said magnetic pole position estimating means applies an AC pulse voltage signal in a d-axis direction on a rotating coordinate system of said AC motor to estimate a magnetic pole position of said AC motor from a difference between a current generated when the AC pulse voltage signal is applied in a positive

direction and a current generated when the AC pulse voltage signal is applied in a negative direction; and

said fault detecting means detects inversion of an estimated magnetic pole position by comparing a voltage command vector on the q-axis on the rotting coordinate system with a rotating direction of said AC motor.

7. (ORIGINAL) A motor control apparatus according to claim 1, wherein:

said magnetic pole position estimating means applies an AC pulse voltage signal in a d-axis direction on a rotating coordinate system of said AC motor to estimate a magnetic pole position of said AC motor from a difference between a current generated when the AC pulse voltage signal is applied in a positive direction and a current generated when the AC pulse voltage signal is applied in a negative direction; and

said fault detecting means detects inversion of an estimated magnetic pole position and out of synchronism by monitoring a current difference value on the d-axis on the rotational coordinate system.

8. (ORIGINAL) A motor control apparatus according to claim 1, wherein:

said magnetic pole position estimating means applies an AC pulse voltage signal in a d-axis direction on a rotating coordinate system of said AC motor to estimate a magnetic pole position of said AC motor from a difference between a current generated when the AC pulse voltage signal is applied in a positive

direction and a current generated when the AC pulse voltage signal is applied in a negative direction; and

said fault detecting means detects inversion of an estimated magnetic pole position and out-of-synchronism by monitoring a difference between the current differences on the d-axis on the rotating coordinate system.

9. (CURRENTLY AMENDED) A motor control apparatus according to claim 1, wherein:

said fault detecting means detects oscillation**[,]** **and** inversion **[and so on]** of an estimated magnetic pole position when a changing rate of the estimated magnetic pole position exceeds a predetermined set value.

10. (CURRENTLY AMENDED) A motor apparatus according to claim 1, wherein:

said fault detecting means includes rotational speed calculating means for calculating a rotational speed of said AC motor, such that said fault detecting means detecting oscillation**[,]** **and** inversion **[and so on]** of an estimated magnetic pole position when a calculated rotational speed exceeds an predetermined set value.

11. (CURRENTLY AMENDED) A motor control apparatus according to claim 1, wherein:

said fault detecting means includes rotational speed calculating means for calculating a rotational speed of said AC motor, such that said fault detecting means detects oscillation**[,]** **and** inversion **[and so on]** of an estimated magnetic

pole position when a changing rate of a calculated rotational speed exceeds a predetermined set value.

12. (ORIGINAL) A motor control apparatus according to claim 1, wherein:

said magnetic pole position estimating means estimates a magnetic pole position of a rotor of said AC motor based on a current value of said AC motor detected in synchronism with a carrier of the PWM signal;

said magnetic pole position estimating means includes:

A12 position calculating means for estimating a magnetic pole position direction of the rotor of said AC motor; and

polarity discriminating means for discriminating whether said magnetic pole position direction derived from said position calculating means is in an N-pole direction or in an S-pole direction; and

said fault detecting means determines a fault when said polarity discriminating means does not discriminate the magnetic pole position direction within a predetermined time period.

13. (CURRENTLY AMENDED) A motor control apparatus according to claim 1, wherein:

said fault detecting means shuts down an associated system when said fault detecting means detects a fault, said fault including oscillation**[,]** **and** inversion **[and so on]** of an estimated magnetic pole position.

14. (CURRENTLY AMENDED) A motor control apparatus according to claim 1, wherein:

said polarity discriminating means again corrects the polarity to continue a control when said fault detecting means detects a fault, said fault including oscillation**[,]** **and** inversion **[and so on]** of an estimated magnetic pole position.

15. (ORIGINAL) An electric vehicle equipped with a motor-control apparatus for controlling a voltage applied to an alternating current (AC) motor using a PWM signal, said motor control apparatus comprising:

magnetic position estimating means for detecting a current of said AC motor to estimate a magnetic pole position of said AC motor; and

fault detecting means for detecting a fault in an estimated magnetic pole position of said AC motor.

16. (NEW) A motor control apparatus according to claim 1, wherein the magnetic position estimating means is operative to estimate the magnetic pole positions without direct detection of the magnetic pole position.

17. (NEW) A motor control apparatus according to claim 1, wherein the magnetic position estimating means utilizes calculations in lieu of detection to estimate the magnetic pole position.

18. (NEW) A motor control apparatus according to claim 1, wherein the voltage is controlled on the absence of a detector to sense magnetic pole position.

19. (NEW) An electric vehicle according to claim 15, wherein the magnetic position estimating means is operative to estimate the magnetic pole positions without direct detection of the magnetic pole position.

20. (NEW) An electric vehicle according to claim 15, wherein the magnetic position estimating means utilizes calculations in lieu of detection to estimate the magnetic pole position.

21 (NEW) An electric vehicle according to claim 15, wherein the voltage is controlled on the absence of a detector to sense magnetic pole position.

22. (NEW) A motor control apparatus for controlling a voltage applied to an alternating current (AC) motor using a PWM signal, consisting of:

magnetic position estimating means for detecting a current of said AC motor to estimate a magnetic pole position of said AC motor; and

fault detecting means for detecting a fault in an estimated magnetic pole position of said AC motor.

23 (NEW) An electric vehicle equipped with a motor control apparatus for controlling a voltage applied to an alternating current (AC) motor using a PWM signal, said motor control apparatus consisting of:

magnetic position estimating means for detecting a current of said AC motor to estimate a magnetic pole position of said AC motor; and

fault detecting means for detecting a fault in an estimated magnetic pole position of said AC motor.